

## ABSTRACT OF THE DISCLOSURE

In a method and system for producing a higher quality electromyographic signal describing myoelectrical activity of an electrically active region of a subject's muscle, a plurality of EMG signals representative of the electrical activity of the electrically active region of the subject's muscle are sensed through an array of electrodes. A weighting function is applied to the detected EMG signals to thereby produce weighted signals, this weighting function containing correction features for the relative locations of the center of the electrically active region and the electrodes. Finally, a sum or mean of a feature of the weighted signals is calculated to thereby produce the higher quality electromyographic signal. Prior to calculating the sum or mean of the weighted signals, electromyographic quality of the weighted signals is evaluated, and the weighted signals or sum or mean of the weighted signals whose evaluated quality is insufficient are replaced. Alternatively, the higher quality electromyographic signal is replaced in response to weighted signals of insufficient quality. The method and system can also be used to determine signal strength or frequency contents of a signal falling outside the array of electrodes.